PB82-148149

Highway Construction Noise Field Measurements
Site 1: 1-201 (California) (Appendix A)

Wyle Labs./Wyle Research
Arlington, VA

Prepared for

Environmental Protection Agency
Washington, DC

Oct 81

U.S. Department of Commerce
National Technical Information Service
NTIS

PB82-148149

APPENDIX A

HIGHWAY CONSTRUCTION NOISE FIELD MEASUREMENTS, SITE 1: I-201 (CALIFORNIA)

October 1981

Office of Noise Abatement & Control
U. S. Environmental Protection Agency
Washington, D. C. 20460

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Appendix A, Highway Construction Noise Field Measurements, Site 1: I-201 (California)	June 1981
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William R. Fuller, Ron Brown	
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO.
Wyle Laboratories/Wyle Research 2361 Jefferson Davis Highway, #404 Arlington, Virginia 22202	11. CONTRACT/GRANT NO. DOT-FH-11-9455
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency, Office of Noise Abatement & Control (ANR-471) Washington, D.C. 20460, and U.S. Department of Transportation, Federal Highway Administration, Washington, D.C. 20590	13. TYPE OF REPORT AND PERIOD COVERED Final 14. SPONSORING AGENCY CODE

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Completed under an Interagency Agreement jointly sponsored by both EPA (Office of Noise Abatement and Control) and FHWA.

16. ABSTRACT

This study investigated the noise associated with highway construction activities. It involved the identification and examination of: highway construction activities, noise characteristics associated with highway construction activities, availability of highway construction noise abatement measures, demonstration of construction site noise abatement measures, and development of a computer-based model for use as a tool to predict the noise impact of construction activities and to plan mitigation measures. The model was developed for use on the FHWA computer (IBM 360).

A total of seven reports were prepared in this study and have been released for public distribution.

Reports (Part D through Part G) contain field data gathered at the field demonstrations at highway construction sites in: Route I-201, California; I-205, Oregon; I-95/I-395, Maryland; and I-75, Florida. They contain noise data on single and multiple pieces of equipment, provide general description of highway site activities, and activity analyses of equipment.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Highway Noise Construction Equipment Noise Measurements Construction Noise Noise Abatement		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
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EPA Form 2220-1 (9-73)

APPENDIX A

HIGHWAY CONSTRUCTION NOISE FIELD MEASUREMENTS, SITE 1: I-201 (CALIFORNIA)

October 1981

Office of Noise Abatement & Control
U. S. Environmental Protection Agency
Washington, D. C. 20460

This report has been approved by EPA for general availability. The contents of this report reflect the views of the contractor, who is responsible for the facts and the accuracy of the data presented herein, and do not necessarily reflect the official views or policy of EPA or DOT. This report does not constitute a standard, specification, or regulation,

PERMISSION IS GRANTED TO REPRODUCE THIS MATERIAL WITHOUT FURTHER CLEARANCE.

FORWARD

This study was jointly sponsored, through an Interagency Agreement (IAG), by the Office of Noise Abatement and Control (ONAC), U.S. Environmental Protection Agency (EPA), and the Federal Highway Administration (FHWA), U.S. Department of Transportation (DOT). The study was conducted by Wyle Laboratories under contract to FHWA Contract No. DOT-FH-11-9455. Wyle Research of El Segundo, California, and Wyle Research of Arlington, Virginia, performed the study.

The object of the study was to investigate and study the noise associated with highway construction activities. The study involved the identification and examination of: highway construction activities, noise characteristics associated with highway construction activities, availability of highway construction noise abatement measures, demonstration of construction site noise abatement measures, and development of a computer-based model for use as a tool to predict the noise impact of construction activities and to plan mitigation measures. The model was developed for use on the FHWA computer (IBM 360).

The principal project officers for Wyle Laboratories on this project were Mr. William Fuller of Wyle Research in El Segundo and Dr. Kenneth Plotkin of Wyle Research of Arlington, Virginia.

The government project managers for the study were Mr. Fred Romano of FHWA, and Mr. Roger Heymann of EPA/ONAC.

The various technical reports completed by Wyle under this contract and submitted to FHWA have been released for public distribution by EPA.

PREFACE

This study involved a comprehensive review of the environmental noise associated with highway construction activities. A total of seven reports have been released for public distribution. These reports are:

1. Analysis and Abatement of Highway Construction Noise, EPA 550/9-81-314-A, September 1981.
2. A Model for the Prediction of Highway Construction Noise, EPA 550/9-81-314-B, September 1981.
3. IBM 360/System Batch Version of Highway Construction Noise Model, EPA 550/9-81-314-C, September 1981.
4. Appendix A, Highway Construction Noise Field Measurements, Site 1: I-201 (California), EPA 550/9-81-314-D, September 1981.
5. Appendix B, Highway Construction Noise Field Measurements, Site 2: I-205 (Oregon), EPA 550/9-81-314-E, September 1981.
6. Appendix C, Highway Construction Noise Field Measurements, Site 3: I-95/ I-395 (Maryland), EPA 550/9-81-314-F, September 1981.
7. Appendix D, Highway Construction Noise Field Measurements, Site 4: I-75 (Florida), EPA 550/9-81-314-G, September 1981.

The first two reports (Part A and Part B) might be considered the principal reports since they are relatively self-contained units on this study's efforts, the engineering studies and the computer model, respectively. In this regard, if there is to be a limited purchase of the reports, one might consider obtaining either or both of Part A and Part B, and obtaining the other reports as additional informational needs arise.

- The first report (Part A) contains all of the information from the engineering study phase of the project. It gives information on highway construction procedures, highway construction site noise characteristics, available abatement measures, and results from field demonstrations on noise abatement.

- The second report (Part B) presents a complete description of the highway noise prediction model. The report contains a description of the model's formulation and construction, a description of the program, and a user's manual.

- The third report (Part C) provides additional information to the Part B report on the highway construction noise model installed at DOT's Transportation Computer Center on an IBM 360 computer. It delineates the differences between the version of the model as installed on the IBM 360 and the two models (HINPUT and HICNOM) operating on the Wyle Computer (PDP-11). The report has additional user's manual information for use on the IBM 360, a programmer's manual describing changes in going from the PDP-11 to the IBM 360, and a maintenance manual.

- Reports 4, 5, 6, and 7 (Part D through Part G) contain field data gathered at the field demonstrations at highway construction sites in: Route I-201, California; I-205, Oregon; I-95/I-395, Maryland; and I-75, Florida. They contain noise data on single and multiple pieces of equipment, provide general description of highway site activities, and activity analyses of equipment.

APPENDIX A

This appendix summarizes field measurements performed at the I-210 (California) construction site during July and August 1979. The project encompassed 6 miles of 8-lane divided interstate highway which will complete construction on I-210. The highway at this location ran through a suburban area characterized by low-density housing and small farms. Approximately two-thirds of the highway alignment was flat. However, at the southern end of the site, major earthwork activities were in progress through hilly terrain. Common soil was typical at this site, with little or no rock excavation anticipated. The soil in this area was dry. Further description of the site is presented in Section 3.5 of the main report.

The following data and information are presented in this appendix:

1. General highway site description.
2. Noise measurements of activities involving single or multiple pieces of equipment; diagrams describing each activity site are included.
3. Controlled single equipment noise measurements of selected equipment.
4. Equipment activity analysis of selected equipment.

A summary of key construction noise data derived from this site is presented in Section 3.5.3 of the main report.

I-210-1(269)7

STATE OF CALIFORNIA
BUSINESS AND TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY

IN LOS ANGELES COUNTY IN LOS ANGELES FROM VAN NUYS BOULEVARD TO 0.9 MILE EAST OF SUNLAND BOULEVARD

To be supplemented by Standard Plans dated March 1977

REDUCED PLAN
USE SCALE BELOW

07	LA	210	R6.6/R12.0	1	457

LOCATION MAP

INDEX OF SHEETS

Sheet No.		
1		Title Sheet
"	2-5	Typical Cross Sections
"	6	Standard Plans List
"	7-42	Plans, Profiles & Earthwork Quantities
"	43-48	Stage Construction
"	49-69	City Street Plans
"	70-112	Contour Grading, Striping, Markers, Fence, Guard Railing, Waterline Crossovers, Erosion Control & Traffic Control System
"	113-169	Storm Drain Plans & Profiles
"	170-177	Sewer Plans
"	178	Mandatory Borrow Site
"	179	Sewer Quantities
"	180-198	Drainage Structure List
"	199-201	Quantity Summaries
"	202-218	Special Details
"	219-232	Utility Plans
"	233-245	Sign Plans
"	246-291	Electrical Plans
"	292-297	Retaining Wall
"	298-326	Sound Walls
"	327-457	STRUCTURES - SEE LIST BELOW

Sheet No. 1 Mass Diagram
" " 1-178 Cross Sections

⚠1 SHEETS ADDED FOR ADDENDUM NO. 1

SHEET NO.	
"	132-A
"	190-A
"	191-A

Beginning of Major Construction
Station 432+54.50
P.M. R 6.6

Beginning of Work
Station 353+50.00

SEE DIAGRAMS 8-1A & 8-7A

SEE DIAGRAM 8-3A

SEE DIAGRAM 8-3B

SEE DIAGRAM 8-7B

CITY OF LOS ANGELES

CITY OF SAN FERNANDO

Limit of Work
Station 676+50.00

MANDATORY BORROW SITE

HANSEN FLOOD CONTROL BASIN

SEE DIAGRAM 7-30A

End of Major Construction
Station 149+00.00
P.M. R 12.0

End of Work
Station 192+00.00

SCALE IN FEET

LEGEND
Major Construction

STRUCTURE LIST

SHEET NO.	INDEX NO.	NAME	BRIDGE NO.
317-329	(1)	PIERCE ST. PUC	53-2170
332-338	(2)	LOPEZ CANYON CHANNEL CULVERT	53-2360
338-350	(3)	YERMA BELLA ST UC	53-2117
351-366	(4)	KAGEL CANYON ST PUC	53-2131
367-368	(5)	FOOTHILL BOULEVARD UC (Widened)	53-2118
367-374	(6)	LITTLE TUJUNGA WASH BR	53-2247
375-383	(7)	OPAL AVENUE UC	53-2230
384-392	(8)	CHRISTY AVENUE UC	53-2243
393+400	(9)	WHEATLAND AVE UC	53-2233
401+430	(10)	BIG TUJUNGA WASH BR	53-2249
438-444	(11)	WENTWORTH ST UC	53-2246
448-457	(12)	SUNLAND BOULEVARD UC	53-2251
421-435	(13)	SO BRANCH BIG TUJUNGA WASH BR	53-2562

The detailed plans are a portion of the route for the State Highway adopted by the California Highway Commission on March 28, 1968 and September 1, 1964 and declared a FREEWAY by resolution of the California Highway Commission on March 28, 1968 and September 1, 1964

Length of Major Construction 5.4 Miles
Length of Work 7.7 Miles

⚠1 Revised for Addendum No. 1 dated May 10, 1978

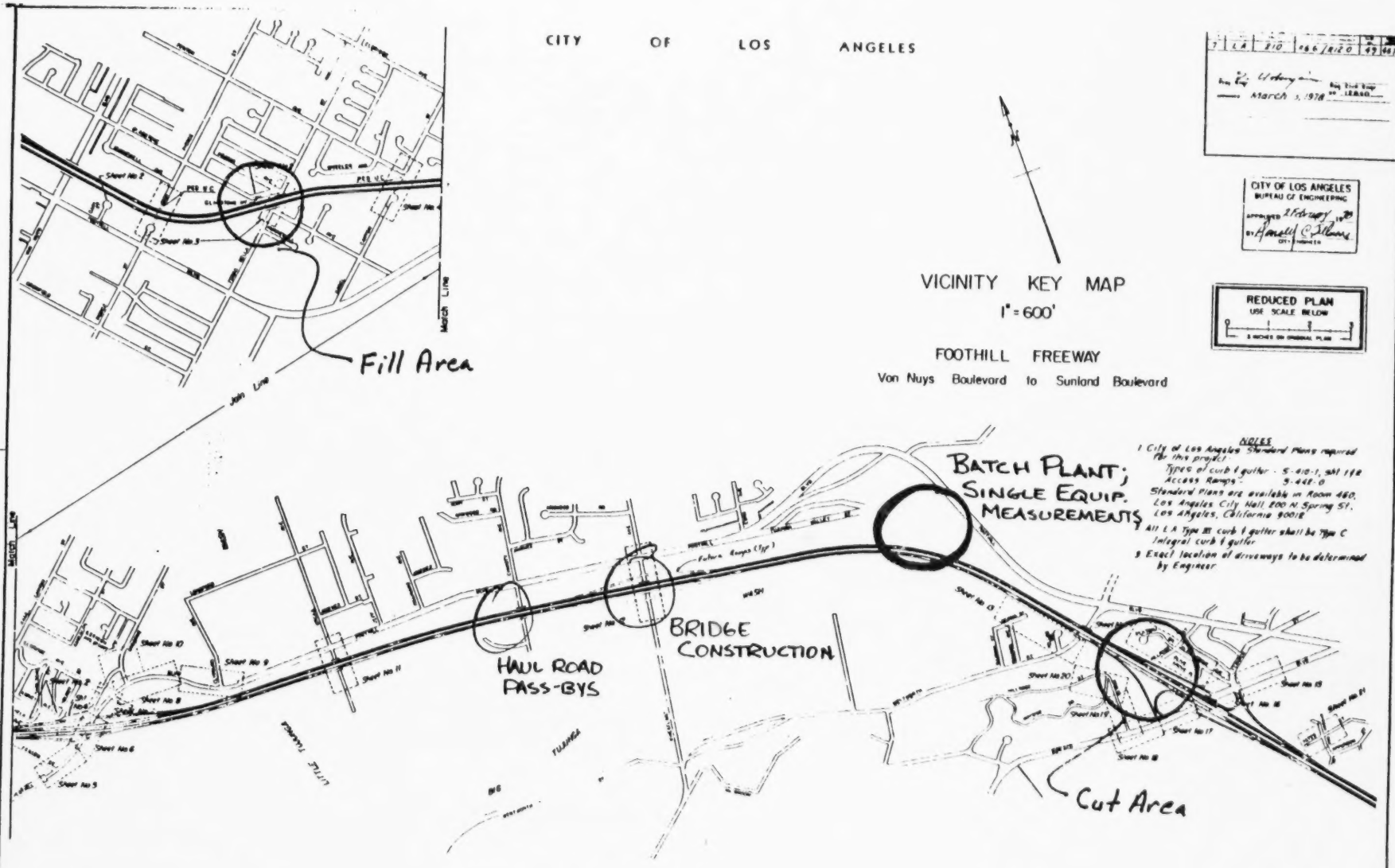
Approved March 13, 1978

Contract No. 07-063754

07-209 063751

1961

CITY OF LOS ANGELES



VICINITY KEY MAP

1" = 600'

FOOTHILL FREEWAY

Von Nuys Boulevard to Sunland Boulevard

NOTES

1. City of Los Angeles Standard Plans required for this project:
   Types of curb & gutter - S-410-1, S&H 110
   Access Ramps - S-442-0
   Standard Plans are available in Room 460, Los Angeles City Hall, 200 N. Spring St., Los Angeles, California 90012
2. All L.A. Type III curb & gutter shall be Type C Integral curb & gutter
3. Exact location of driveways to be determined by Engineer

CITY OF LOS ANGELES
BUREAU OF ENGINEERING
APPROVED 2 February 1978
BY Harold O. Williams
CITY ENGINEER

REDUCED PLAN
USE SCALE BELOW
8 INCHES ON ORIGINAL PLAN

7	L.A.	210	166/210		49	681	

March 1, 1978 NO. LEA60

Project Engineer	Date	Design Engineer	Date	Approved	Date
S. Yokoyama	4/77	W.D. Knudsen	4/77	R.F. Baker	4/77

CSP

STREET PLANS: Sheet 1 of 21 Sheets

Measurement Site Data

Highway: I-210 Date: July/August 1979

Site Location: Cut Area; north end of project

Type of Measurements:

- [ ] Community
- [x] Activity
- [ ] Propagation
- [x] Site Boundary
- [ ] Single Equipment
- [x] Movies

Soil/Terrain Conditions: Area where haul trucks operate; hard, [illegible] earth.
Area around C1, C5, C6: hard, bank earth
C4 located on top of side of hill.
Area around C2, C3: loose soil, uneven terrain

Machinery Description:
Fiat-Allis 31 track dozer (#25[illegible])
Fiat-Allis 41 track dozer (#2[illegible])
Cat D4G track dozer (#2[illegible])
Cat D7E track dozer (#2[illegible])
2 Cat 992 articulated front end loaders; 10 yd scoop
Peterbilt tractor w/dual exhaust; double [illegible]; [illegible] semi-trailers.

Miscellaneous Information:
Several sketches of area made; cut area terrain changed significantly from day to day.

DATA LOG SUMMARY

HIGHWAY: I-210 DATE: JULY/AUG. 1979

SITE LOCATION: CUT AREA

Sample	Location	Date	Time	Dur.	Site Diag.	Comments	Reduced
45-1	C-1	7-30	1147	15	7-30A 7-30/31C	W/MOVIES; CH. 1 & 2 SEPARATED BY 100'	✓
2	C-5	7-30	1455	15	7-30A 7-30F	—	—
3	C-3	7-31	0940	15	7-30A	—	—
4	C-5/C-6	7-31	1130	15	7-30A 7-31B	CH. 1 & 2 SEPARATED BY 100'	✓
5	C-4	7-31	—	20	7-30A 7-30/31C	W/MOVIES	—
15	C-7	8-7	1205	6	7-30A 8-7D	W/MOVIES; LOADING OPERATION SOUTH OF CUT AREA; N. OF SUNLAND CAUSE	—
16	C-8	8-7	1339	6	8-7D	W/MOVIES; PARKING OF CRITICAL; CLUTTER OF CUT AREA	✓
210-1-1	C-1	7-30		2:53	7-30A 7-30/31C	SITE BOUNDARY	—
-1-2	C-2	7-31		2:45	7-30A	SITE BOUNDARY	—
-1-3	C-3	7-31		—	7-30A	SAMPLE NOT GOOD	
210-2-1	C-1	7-31		1:45	7-30A 7-30/31C	SITE BOUNDARY	—
210-5-2	C-1	8-9		1:00	7-30A	SITE BOUNDARY	—
210-7-2	C-1	8-15		12:00	7-30A	SITE BOUNDARY	—

ACTIVITY NOISE MEASUREMENTS

HIGHWAY: I-210 DATE: JULY/AUGUST 1979

SITE LOCATION: CUT AREA

Sample	Location	Date	Dur.	L_{eq}	L_{99}	L_{90}	L_{50}	L_{10}	L_1
45-1; CH 1	C-1	7-30	13	77	64	72	78	81	84
45-1; CH 2.	C-1	7-30	14	74	61	72	76	86	87
45-2	C-5	7-30	14	79.1	70	73	77	84	86
45-3	C-3	7-31	15	76.8	73	74	77	79	80
45-4; CH1	C-5	7-31	20	79.1	71	74	79	81	84
45-4 CH2	C-6	7-31	20	69.9	65	67	69	71	73
45-5	C-4	7-31	16	75.2	71	73	75	77	80
45-15	C-7	8-7	6	75.4	69	72	75	77	78
45-16	C-8	8-7	5	75.6	71	72	75	78	82

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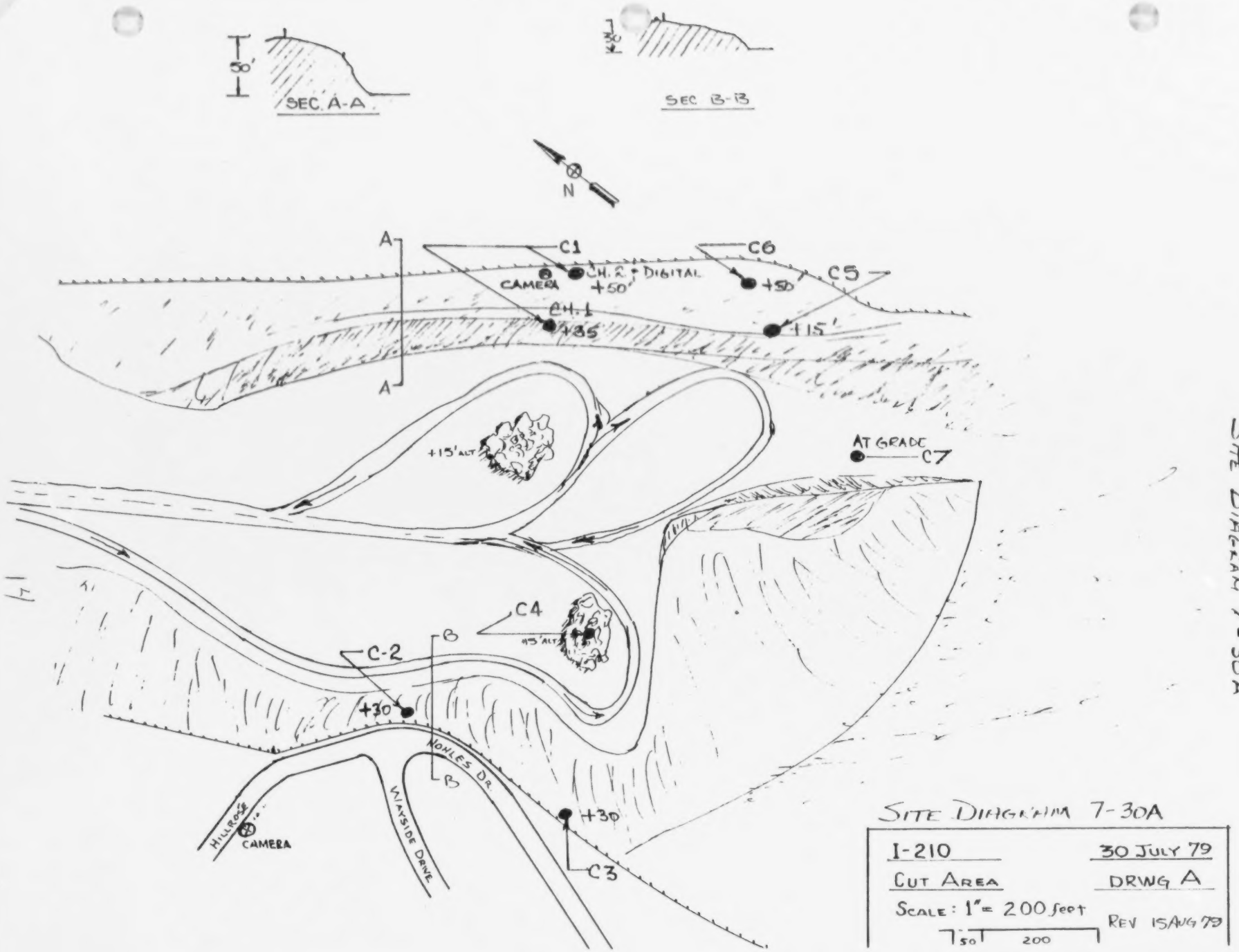
SITE BOUNDARY/COMMUNITY NOISE MEASUREMENTS

HIGHWAY: I-210 DATE: JULY / AUG 79

SITE LOCATION: CUT AREA

Sample	Location	Date	Dur.	L_{eq}
210-1-1	C-1	7/30	02:53	68
-1-2	C-2	7/31	02:45	61.6
-1-3	C-3	7/31	—— N/G ——	
210-2-1	C-1	7/31	01:45	66.67
210-5-2	C-1	8/3	01:00	69.4
210-7-2	C-1	8/15	12:00	55.65

13

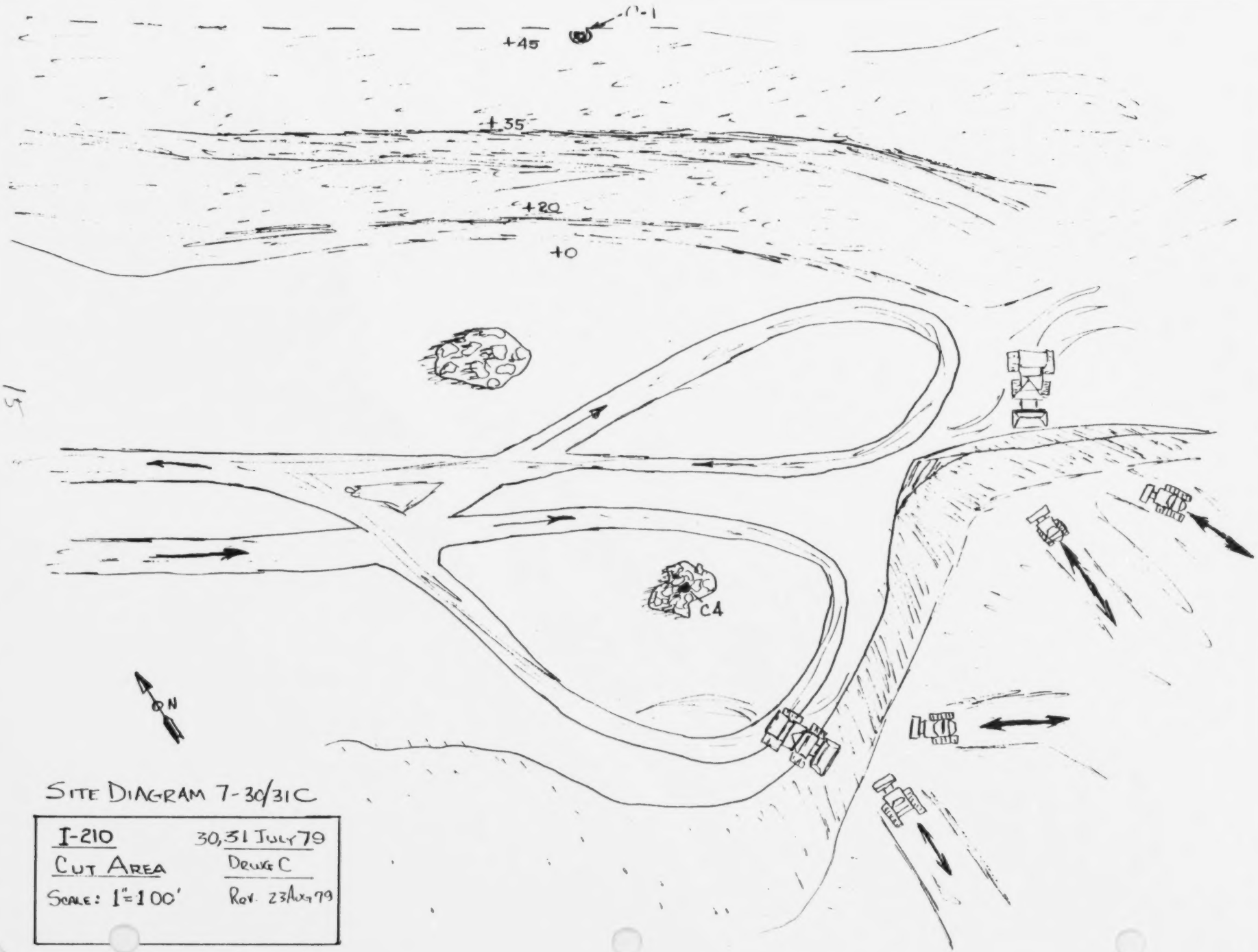


SITE DIAGRAM 7-30A

I-210	30 JULY 79
CUT AREA	DRWG A
SCALE: 1" = 200 feet	REV 15 AUG 79

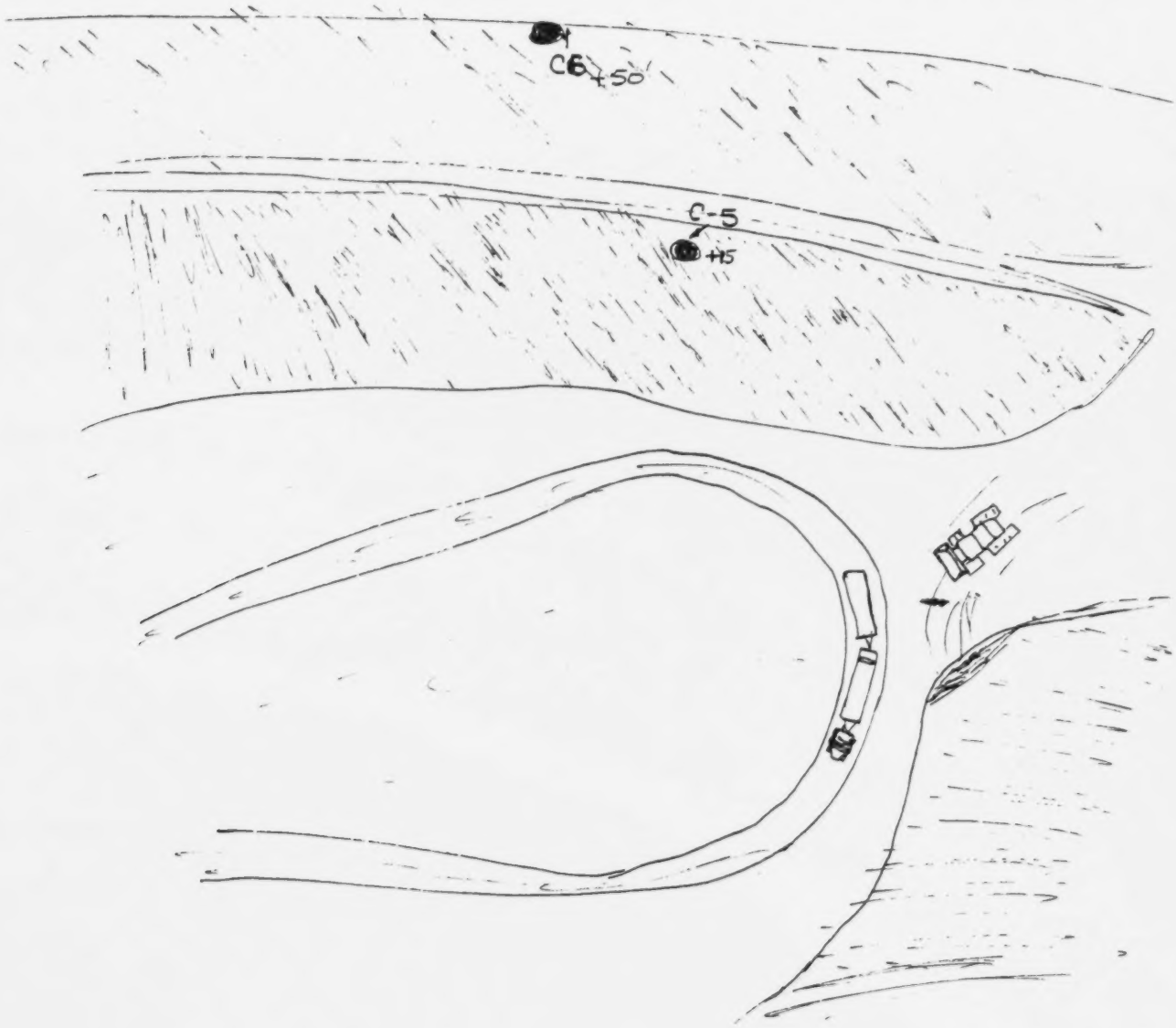
50 200

SITE DIAGRAM 7-30A



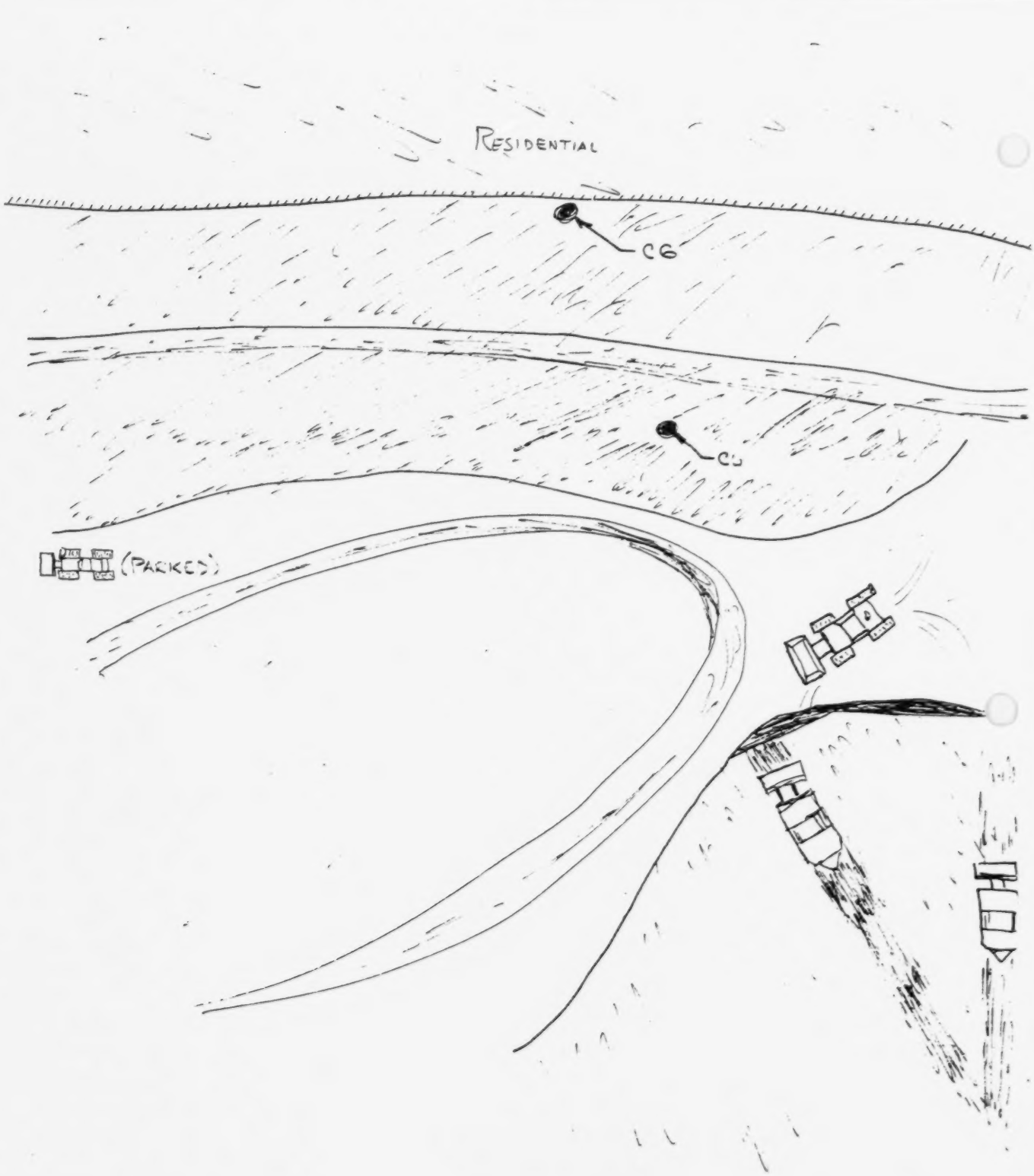
SITE DIAGRAM 7-30/31C

I-210	30,31 JULY 79
CUT AREA	DRWG C
SCALE: 1"=100'	REV. 23 AUG 79



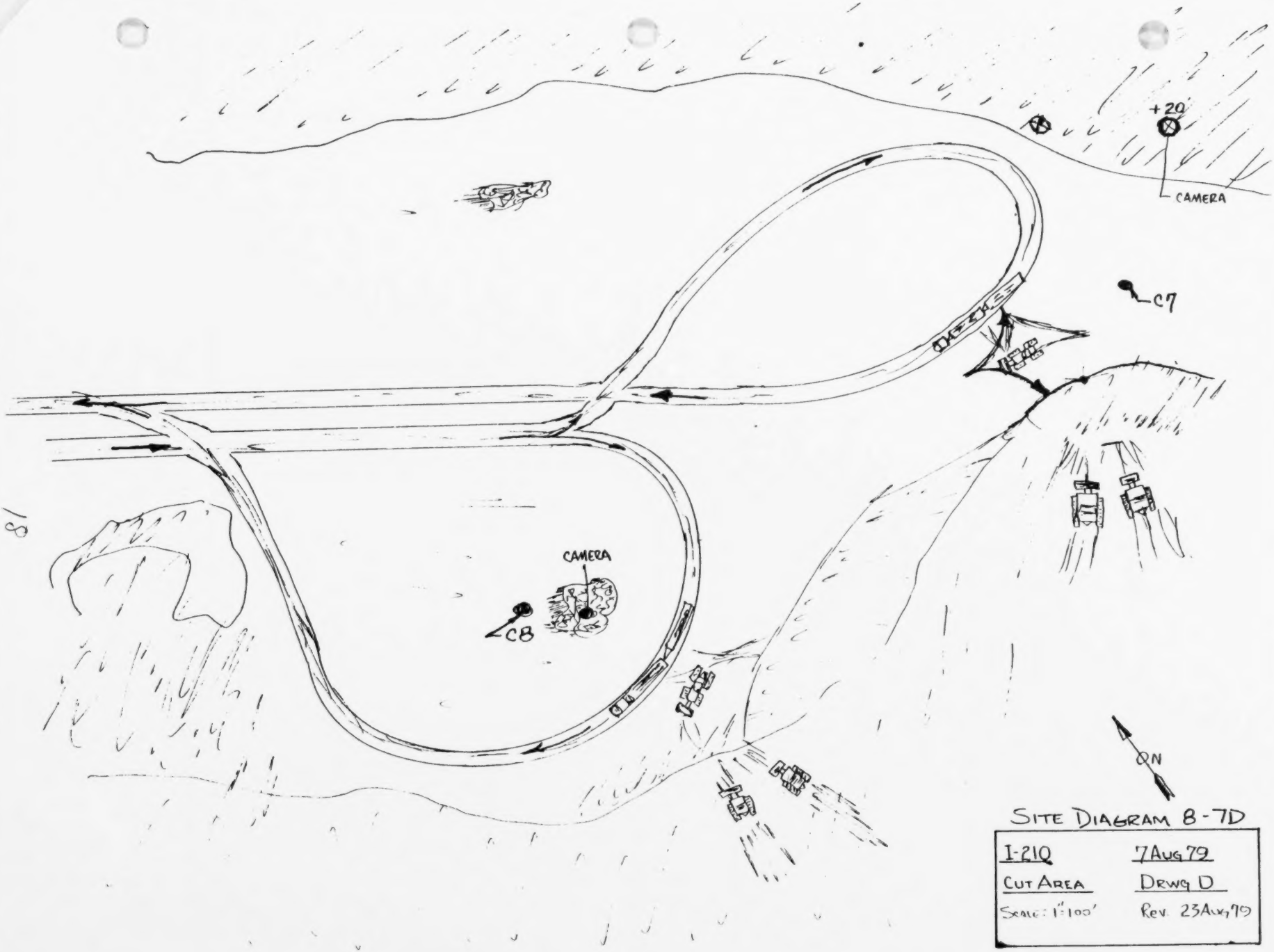
I-210	30 JULY 79
CUT AREA	DRWG F
SCALE: 1" = 80'	REV 22 AUG 79

SITE DIAGRAM 7-30F



I-210 — 31 JULY 79
CUT AREA — DRWG B
SCALE: 1"=80' — REV. 22 Aug 79

SITE DIAGRAM 7-31B



SITE DIAGRAM 8-7D

I-210	7Aug79
CUT AREA	DRWG D
Scale: 1"=100'	Rev. 23Aug79

Measurement Site Data

Highway: I-210 Date: JULY/AUG. 1979

Site Location: FILL AREA; IN THE VICINITY OF TERRA BELLA AVE; 2 SEPERATE LOCATIONS

Type of Measurements:

- ☐ Community
- ☑ Activity
- ☐ Propagation
- ☑ Site Boundary
- ☐ Single Equipment
- ☑ Movies

Soil/Terrain Conditions: Area where truck dumps soil; heavily compacted earth; small windrows are separated by approximately 12' to parallel the dumping area

Machinery Description:
Cat. 824 wheeled tractor
Peterbuilt tractor truck w/dual exhaust; double belly dump 20 yd trailer
Cat. water truck (occasional, needed)
Cat 16 grader

Miscellaneous Information:

DATA LOG SUMMARY

HIGHWAY: I-210

DATE: JULY/AUGUST 1979

SITE LOCATION: FILL AREA

Sample	Location	Date	Time	Dur.	Site Diag.	Comments	Reduced
45-6	F-2	8-1	1015	15	8-1A		✓
7	F-3	8-1	1045	15	8-1A		✓
8	F-4	8-1	1105	15	8-1A		✓
9	F-4	8-1	1510	15	8-1A		✓
10	F-6	8-7	0923	12	8-7A	W/MOVIES	✓
210-1-4	F-5	8-1		2:15		COMMUNITY MEASUREMENT	✓
210-2-2	F-1	8-1		—		NO GOOD	
-2-4	F-5	8-3		0:35		COMMUNITY MEASUREMENT	✓
210-3-1	F-1	8-3		6:08		SITE BOUNDARY	✓
210-5-1	F-6	8-7		1:00		SITE BOUNDARY	✓
210-6-1	F-8	8-14		20:00		AREA ADJACENT TO FILL OPERATION	✓
210-7-1	F-8	8-14		24:00		" " " " "	✓

02

ACTIVITY NOISE MEASUREMENTS

HIGHWAY: I-210

DATE: JULY/AUGUST 1979

SITE LOCATION: FILL AREA

Sample	Location	Date	Dur.	L_{eq}	L_{99}	L_{90}	L_{50}	L_{10}	L_1
45-6	F-7	8-1	9	76.8	70	72	76	80	82
-7	F-3	8-1	12	82.9	67	75	81	86	89
-8	F-4	8-1	15	80.8	67	71	77	84	91
-9	F-4	8-1	—	—	UNUSABLE	—	—	—	
-10	F-6	8-7	8	72.4	58	60	70	77	80

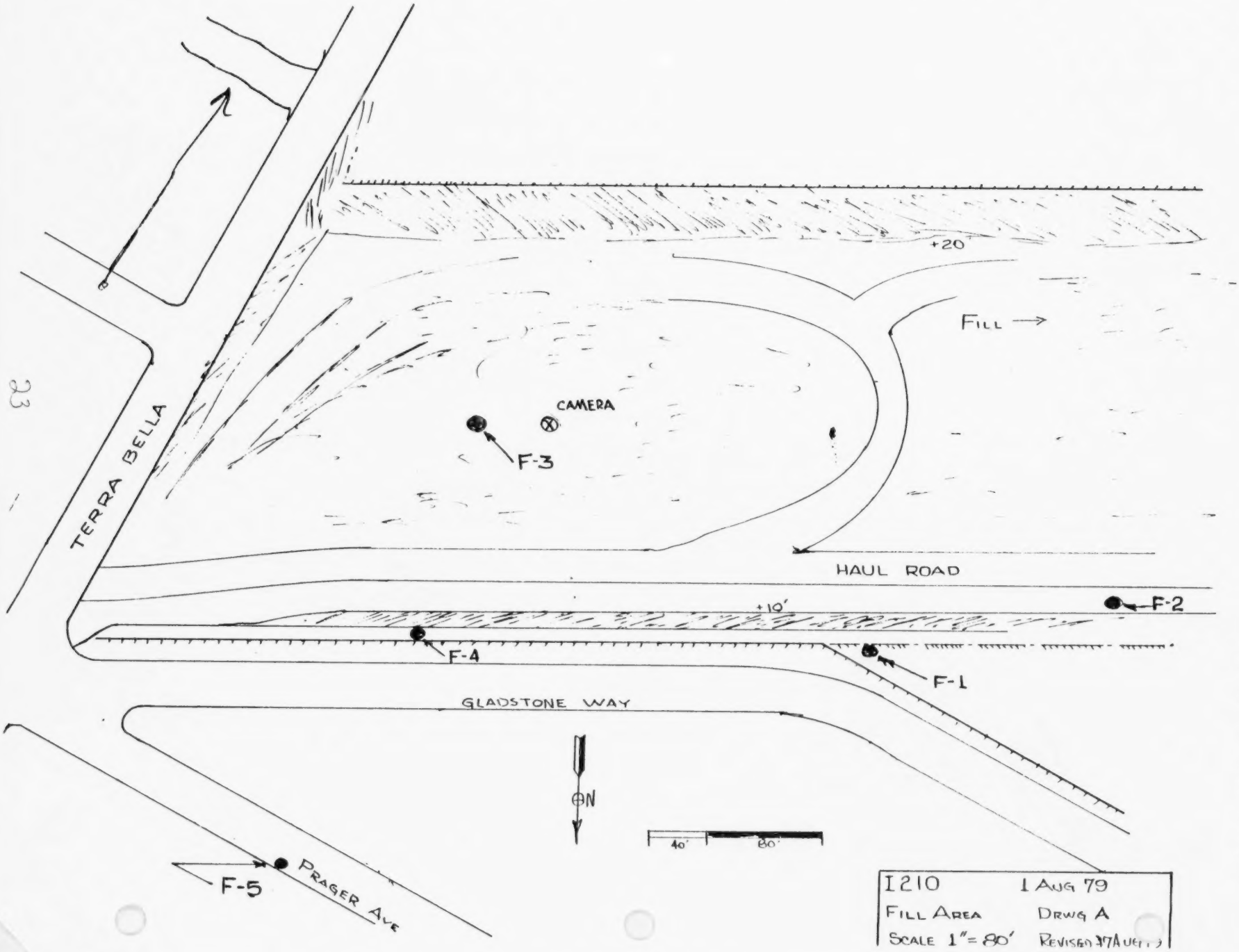
2

SITE BOUNDARY/COMMUNITY NOISE MEASUREMENTS

HIGHWAY: I-210 DATE: July/Aug 79

SITE LOCATION: Fill Area

Sample	Location	Date	Dur.	L_{eq}
210-1-4	F-5	8-1	02:15	63.9
210-2-2	F-1	8-1	— N/G	—
2-4	F-5	8-3	00:35	44.9
210-3-1	F-1	8-3	06:08	72.1
210-5-1	F-6	8-7	01:00	69.4
210-6-1	F-8	8-14	20:00	54.9
210-7-1	F-8	8-14	24:00	56.9



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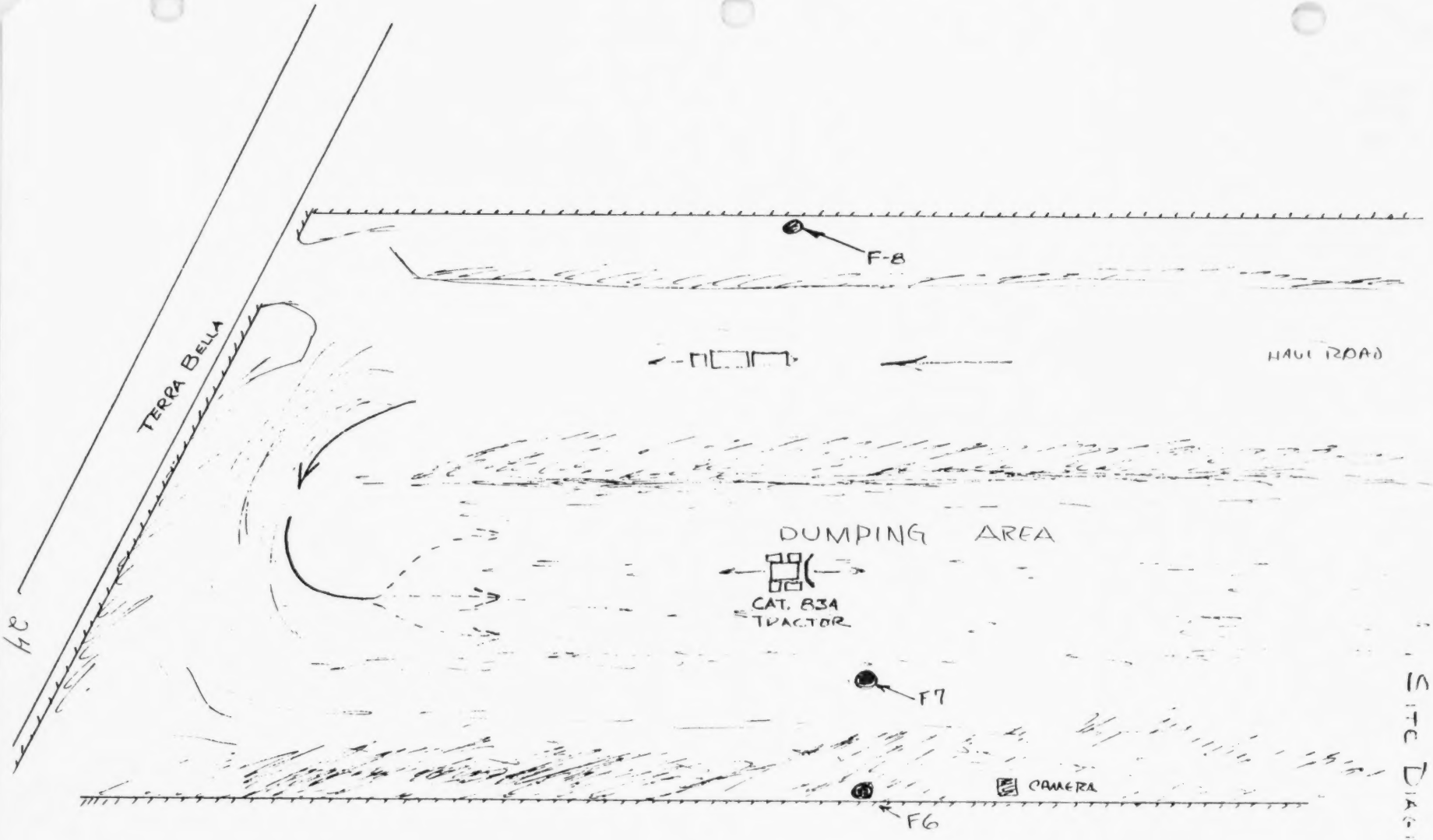
SITE DIAGRAM S-1A



I-210 7AUG79

FILL AREA DRWG A

east of Terra Bella revised 17Aug79

SCALE 1"=80'

40' 80'

Measurement Site Data

Highway: I-210 Date: JULY/AUG 1979

Site Location: ① ADJACENT TO HIGH SPEED SECTION OF HWY - ACROSS
② WHEATLAND AVE BRIDGE CONSTRUCTION SITE

Type of Measurements:

- ☐ Community
- ☑ Activity
- ☐ Propagation
- ☐ Site Boundary
- ☑ Single Equipment
- ☐ Movies

Soil/Terrain Conditions: ① HAUL ROAD IS HARD COMPACTED SOIL + GRAVEL
BETWEEN ROAD & MIC WAS GENTLY SLOPING, HARD BARE EARTH.
② SURFACE IN VICINITY OF MIC WAS HARD, COMPACTED EARTH.
SLOPES OF BRIDGE APPROACHES WERE COMPACTED EARTH.

Machinery Description:
Peterbilt w/dual exhaust; dump bed; [illegible]
Generator
Cement truck

Miscellaneous Information:
TRUCK PASSBYS DURING H-1 SAMPLE:
HOUR 1 = 115
HOUR 2 = 55 (LUNCH)
HOUR 3 = 119
LAST 30 MIN = 58
TOTAL = 347

DATA LOG SUMMARY

HIGHWAY: I-210 DATE: JULY/AUG 1979

SITE LOCATION: HAUL ROAD

Sample	Location	Date	Time	Dur.	Site Diag.	Comments	Reduced
210-4-1	H-1	8-3	-	3:30	8-3A	HAUL ROAD PASSBYS; TOTAL PASSBYS = 347 (SEE PREVIOUS PAGE FOR HOURLY BREAKDOWN); AVG LMAX = 82 dB	—
210-2-3	H-2	8-3	-	1:00	8-3B	BRIDGE CONSTRUCTION: CONCRETE POUR ON BRIDGE DECK.	✓

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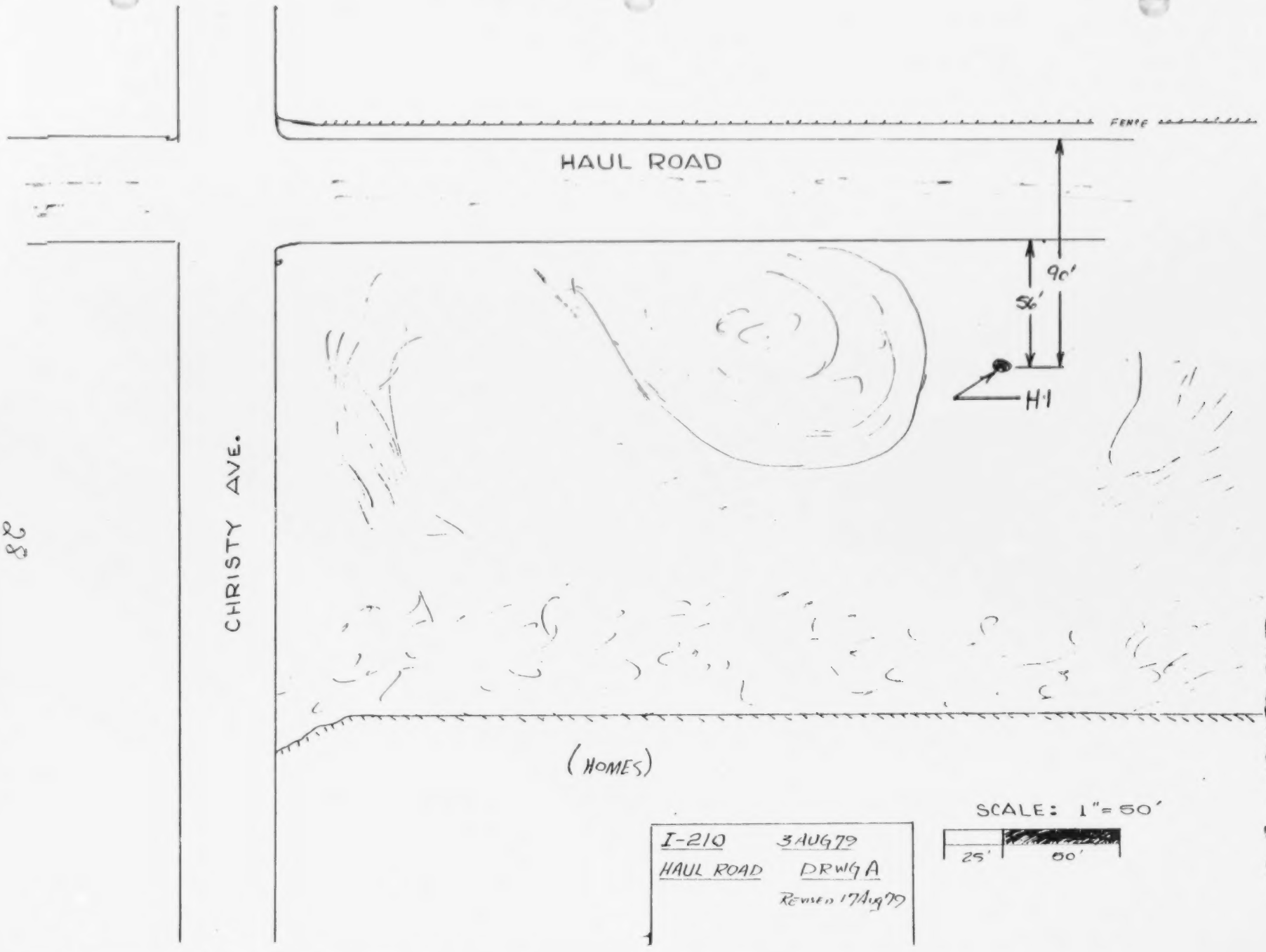
SITE BOUNDARY/COMMUNITY NOISE MEASUREMENTS

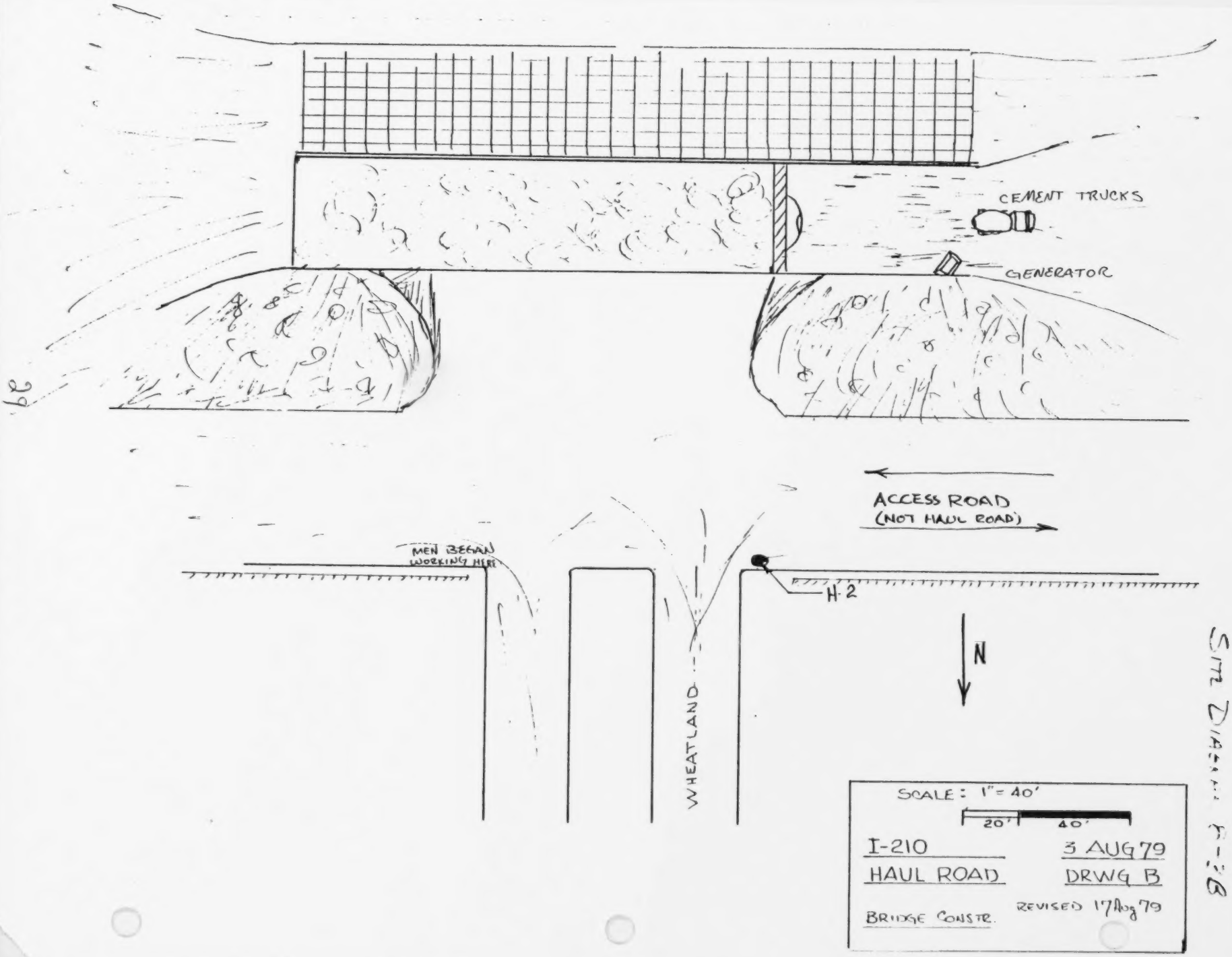
HIGHWAY: I-210 DATE: July / Aug 79

SITE LOCATION: Haul Road

Sample	Location	Date	Dur.	L_{eq}
210-4-1	H1	8-3	03:30	70.8
210-2-3	H2	8-3	04:00	73 3

27


FENCE
HAUL ROAD
90'
56'
H-1
CHRISTY AVE.
(HOMES)
SCALE: 1"=50'
25'
50'
I-210
HAUL ROAD
3AUG79
DRWG A
REVISED 17AUG79



Site Diagram #-B

Measurement Site Data

Highway: I-210 Date: JULY/AUG 1974

Site Location: ① VICINITY OF BATCH PLANT; ② FILL AREA EAST OF TERRA EL CA AVE

Type of Measurements:

- ☐ Community
- ☐ Activity
- ☑ Propagation
- ☐ Site Boundary
- ☑ Single Equipment
- ☐ Movies

Soil/Terrain Conditions: _____

Machinery Description:
Cat 980 Front End Loader
Air Compressor 155 CFM Compressor
Generator (model unknown)
Cat 834 Dozer

Miscellaneous Information:

DATA LOG SUMMARY

HIGHWAY: I-210 DATE: JULY/AUG 1979

SITE LOCATION: BATCH PLANT/FILL AREA

Sample	Location	Date	Time	Dur.	Site Diag.	Comments	Reduced
11	E-1	8-7		—	8-9B	JOHN TATE GENERATOR (SIZE UNKNOWN); DIESEL MOTOR W/ MINIMAL MUFFLER	✓
12	E 2	8-7		-	8-7B	TRAILER MOUNTED DIESEL ENGINE GENERATOR FOR BATCH PLANT; 50' FROM ENGINE EXHAUST	✓
13	E-3	8-7		-	8-7B	TRAILER MOUNTED DIESEL ENGINE GENERATOR FOR BATCH PLANT; 100' FROM ENGINE EXHAUST	✓
14	E-4	8-7		-	8-7B	BATCH PLANT LOADING MACHINERY; 100' FROM CONCRETE TRUCK LOADING TRUCK (PT. A)	✓
18	E-5	8-9		-	8-7B	CAT. 930 FRONT END LOADER; RIGHT SIDE OF VEHICLE; IMI, LEVELS ARE HIGHEST OF 3 TESTS	✓
19	E-5	8-9		-	8-7B	CAT 930 LOADER; LEFT SIDE OF VEHICLE; IMI, LEVELS ARE HIGHEST OF 3 TESTS	✓
20	E-5	8-9		-	8-7B	CAT 930 LOADER; PASSBY LEFT TO RIGHT, LEVELS ARE MAX. ACHIEVED DURING PASSBY	✓
21	E-5	8-9		-	8-7B	CAT 930 LOADER; PASSBY RIGHT TO LEFT LEVELS ARE MAX. ACHIEVED DURING PASSBY	✓
22	E-5	8-9		-	8-7B	GARDNER DENVER 185 CFM COMPRESSOR; SIDE FLAPS OPEN; CONSTANT 1000 RPM (IDLE, NO LOAD)	✓
24	E-6	8-9		-	8-9D	CAT 824 TRACTOR; LEFT SIDE OF VEHICLE; IMI, LEVELS ARE HIGHEST OF 3 TESTS	✓
25	E-6	8-9		-	8-9D	CAT 824 TRACTOR; REAR OF VEHICLE FACING MIC.; IMI, LEVELS ARE HIGHEST OF 3 TESTS	✓
26	E-7	8-9		-	8-9C	CAT 824 TRACTOR; RIGHT TO LEFT PASSBY UNDER LOAD; LEVELS ARE MAX. ACHIEVED DURING PASSBY	✓

SINGLE EQUIPMENT/PROPAGATION NOISE MEASUREMENTS

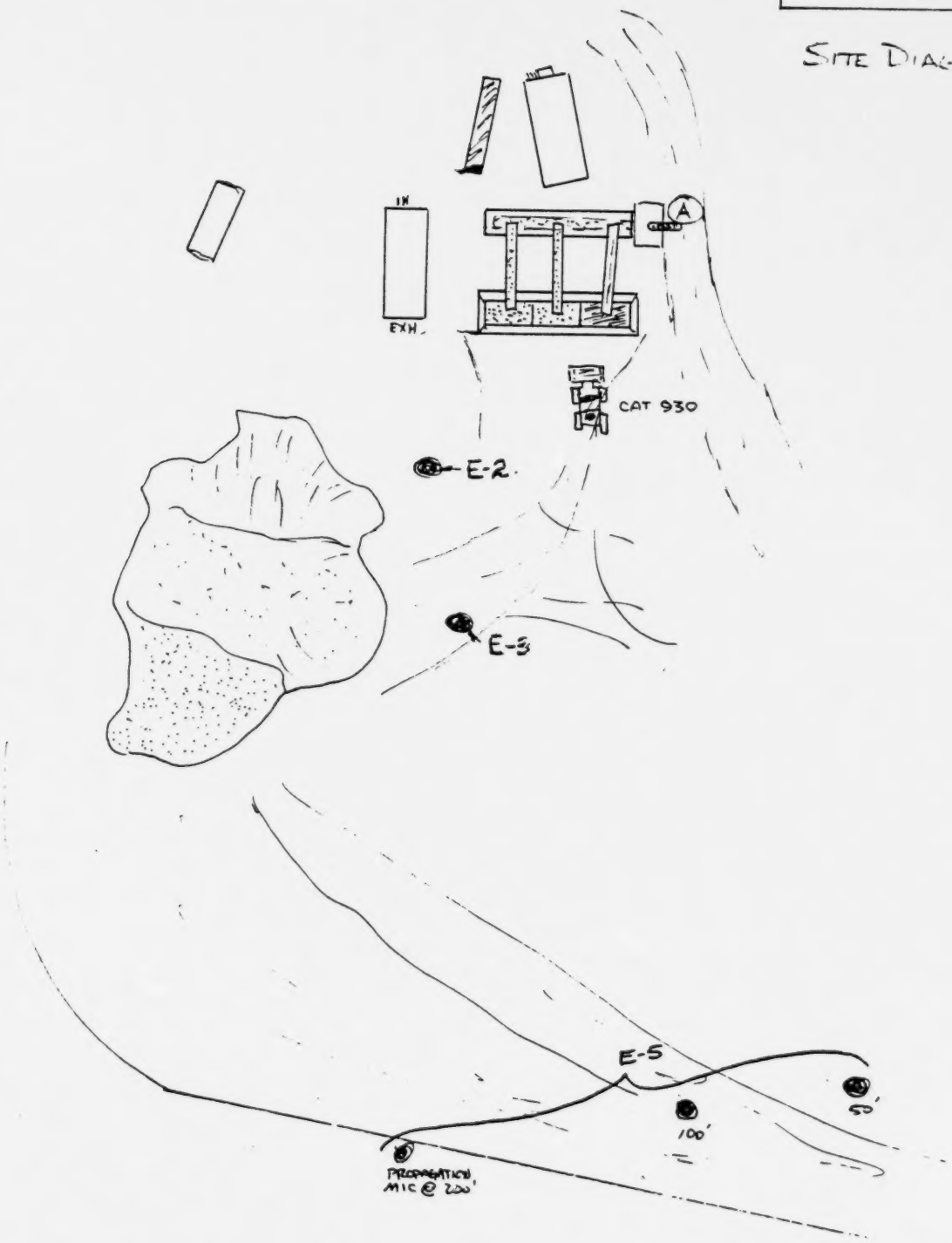
HIGHWAY: I-210 DATE: JULY/AUGUST 1979

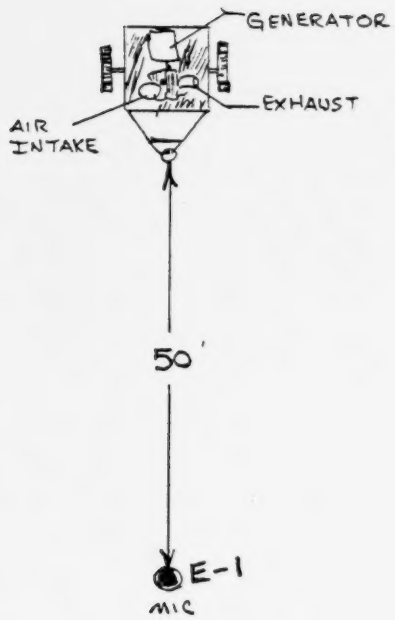
SITE LOCATION: BATCH PLANT / FILL AREA

Sample	Location	Date	Equipment	L_{max} @ 50 ft.	L_{max} @ 100 ft.	L_{max} @ 200 ft.
11	E-1	8/7	SMALL PORTABLE GENERATOR	79		
12	E-2	8/7	GENERATOR AT BATCH PLANT	82		
13	E-3	8/7	" " "		75	
14	E-4	8/7	LOADING MACHINERY AT BATCH PLANT		77	
18	E-5	8/9	CAT 930 IN	88	79	N/G
19	E-5	8/9	" " "	83	75	N/G
20	E-5	8/9	CAT 930 PASS-by	86	78	N/G
21	E-5	8/9	" " "	84	75	N/G
22	E-5	8/9	GARDNER DENVER COMPR.	76	67	N/G
24	E-6	8/9	CAT R34 IN	87	81	74
25	E-6	8/9	CAT 834 IN	88	83	75
26	E-6	8/9	CAT 834 PASS by	89	83	75

I-210	7 AUG 79
BATCH PLANT	DRWG C
SCALE 1" = 50'	REV. 20 AUG 79

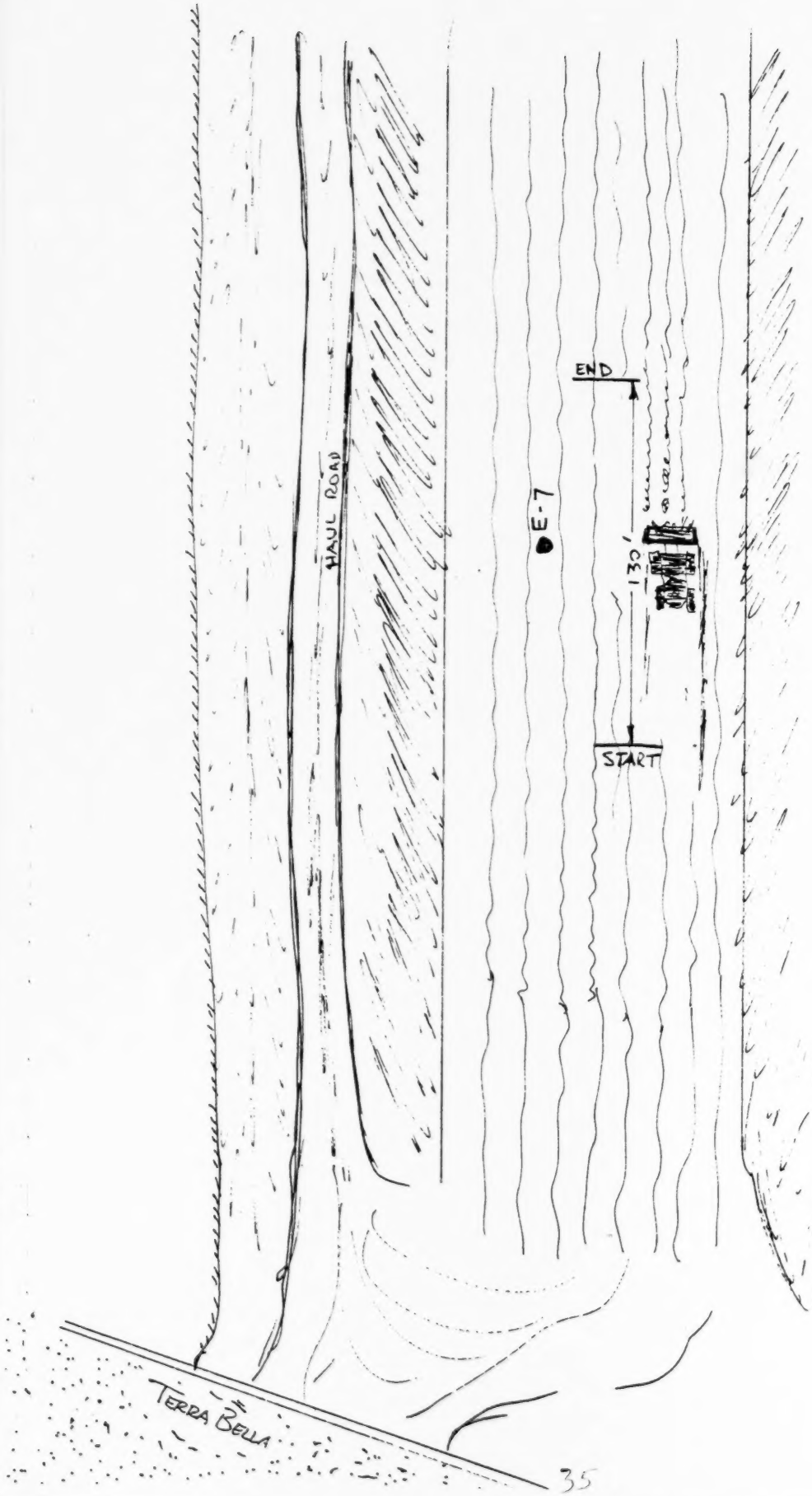
SITE DIAGRAM E-7F





SITE DIAGRAM, 8-9B

I-210 9 AUG 79
SINGLE EQUIP TESTS
PORTABLE GENERATOR
SCALE: 1" = 20' DIAG B



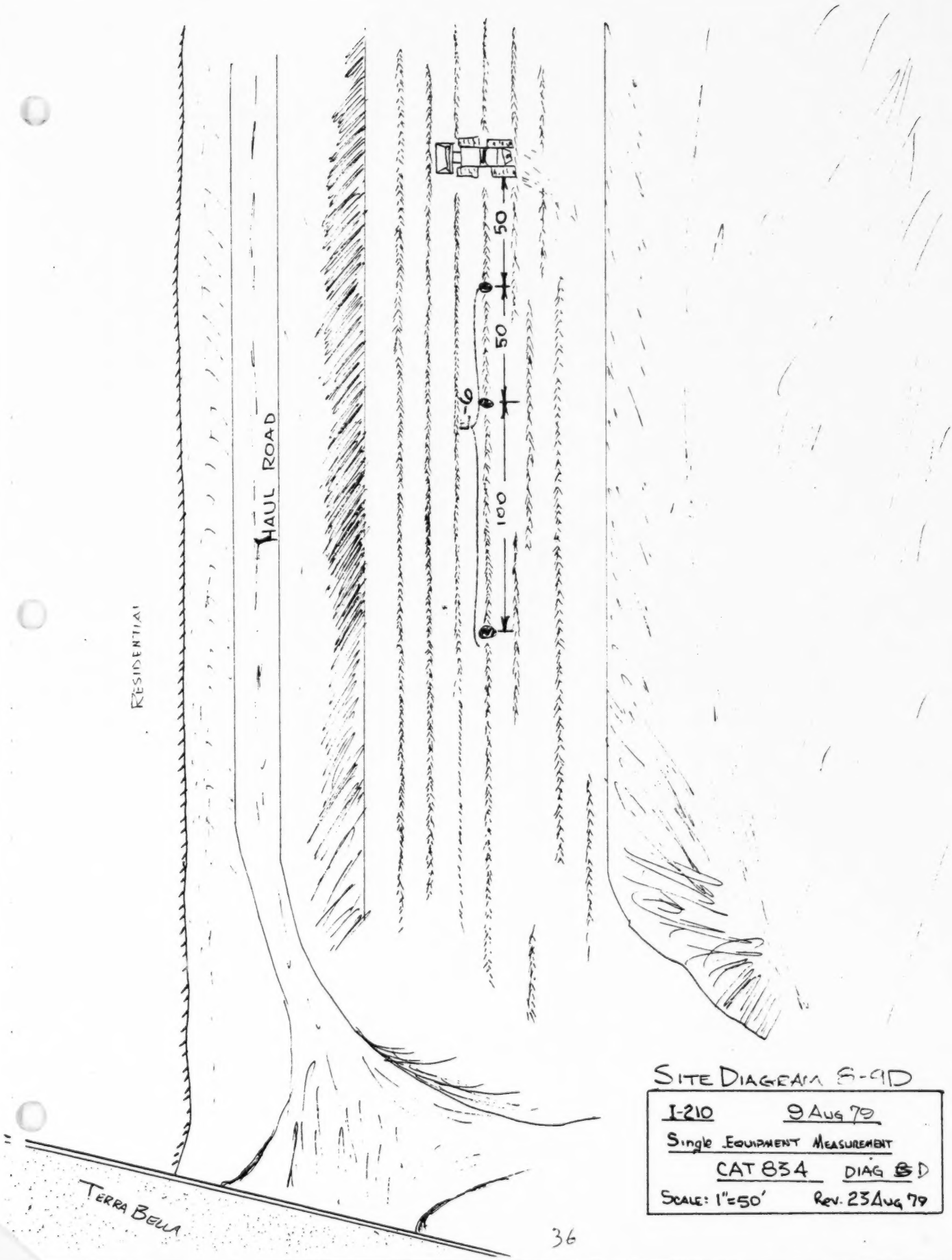
SITE DIAGRAM 8-9C

I-210 9AUG'79

SINGLE EQUIP. TESTS

CAT 834 DWG. C

SCALE: 1"=50' REV. 23AUG79



SITE DIAGRAM S-9D

I-210	9 Aug 79
Single Equipment Measurement	
CAT 834	DIAG S D
Scale: 1"=50'	Rev. 23 Aug 79

Photo Log - 35 mm

Frame #	Location	Date	Time	View or Subject
18	Terra Bella & Prayer	8-1	1520	West at Fill Area
19	E. of TERRA BELLA	8-7	0900	Site F-6, AT BOUNDARY FENCE #19 N.E
20	@ fill LOCATION	8-7	0900	From ROC #20 N.W of ROC.
21	BRIDGE CONSTR. SITE	8-7	1100	GENERATOR
22	CONCRETE BATCH PLANT	8-7	11:30	North of plant, directly behind 100' MIC position
23	CONCRETE BATCH PLANT	8-7	11:45	South of plant; directly behind 100' mic position
24	Cut Area	8-7	1300	Loading operation
1-7	North to Batch Plant	8-9	1300	Cat 930 Loader; Single Equip. Measurement
8-10	" " " "	8-9	1400	G-D Compressor; " " "
11-14	Fill Area; Terra Bella	8-9	1730	Cat 834 Tractor; " " "
15-18	Fill Area Terra Bella	8-14	1200	Site area from point 100' from mic.
19	Fill Area, Terra Bella	8-15	1250	Fill soil from mic.
20	Center of Cut Area	8-15	1300	Site C-1
21-23	Cut Area C-1	8-15	1330	Cut Face; West, North, South

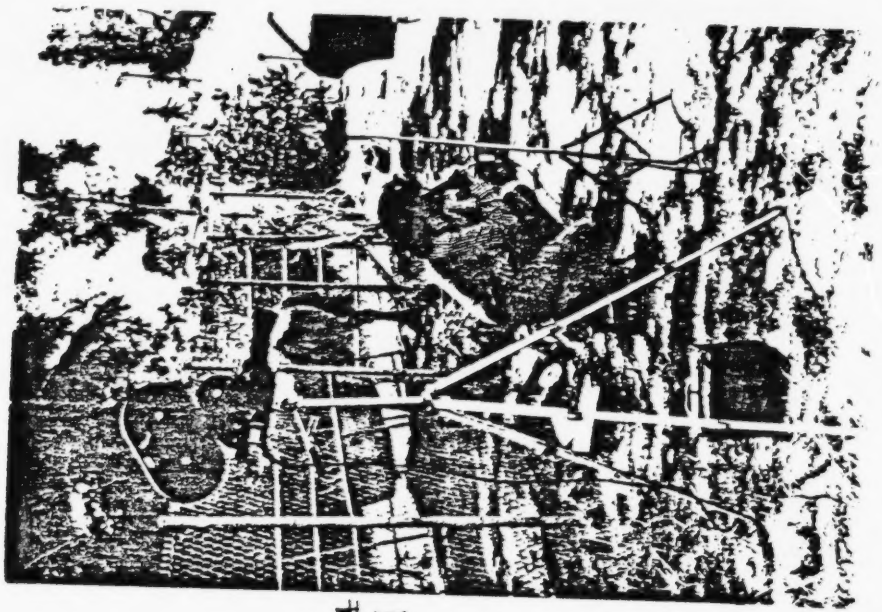
ROLL #3

37

35mm PHOTOS

I-210 ; 7/31/79 THRU 8/7/79

ROLL #1



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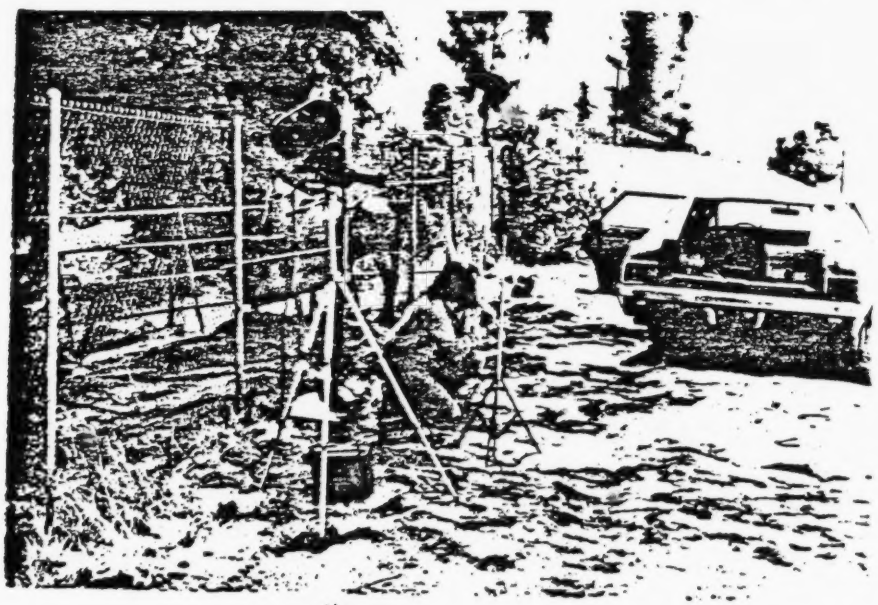


#18

#19

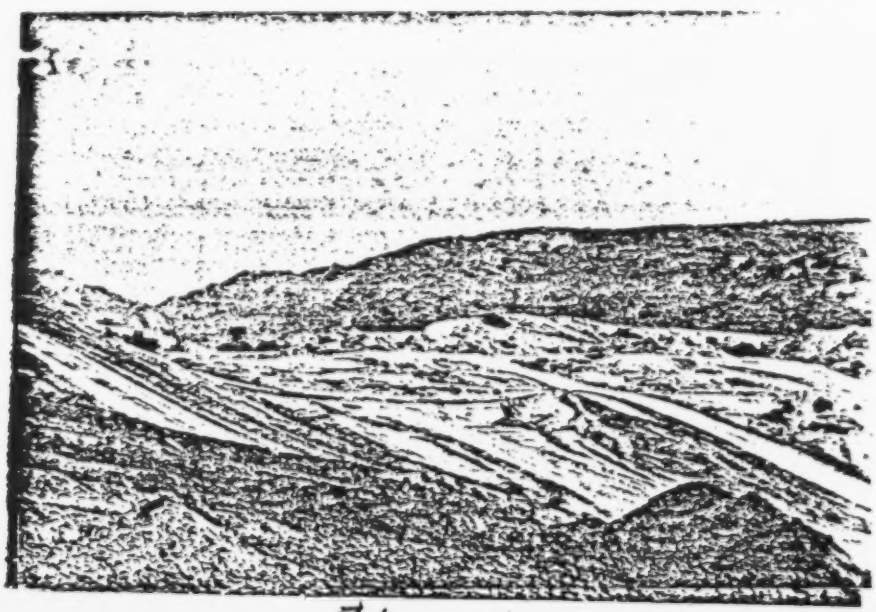
#20

ROLL #2

#1 missing

#4 missing

#5



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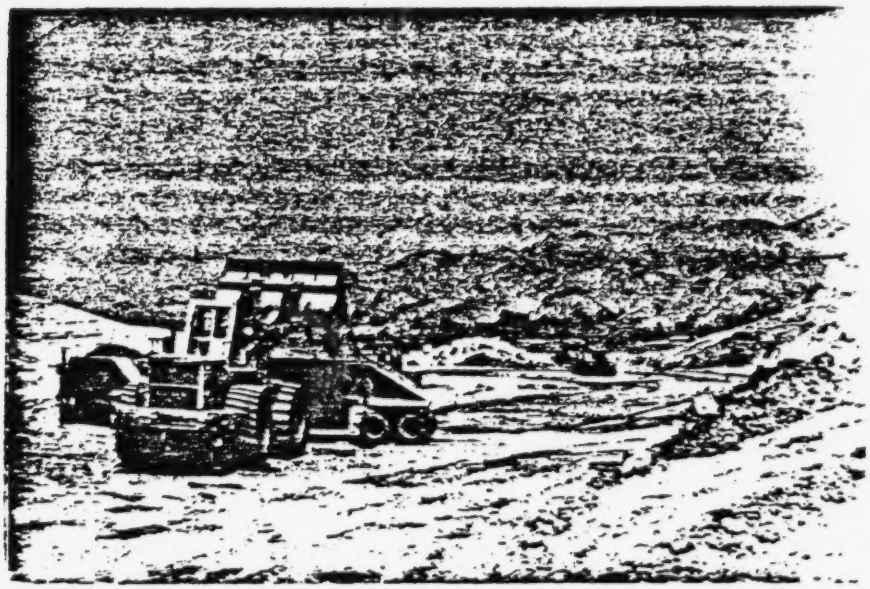

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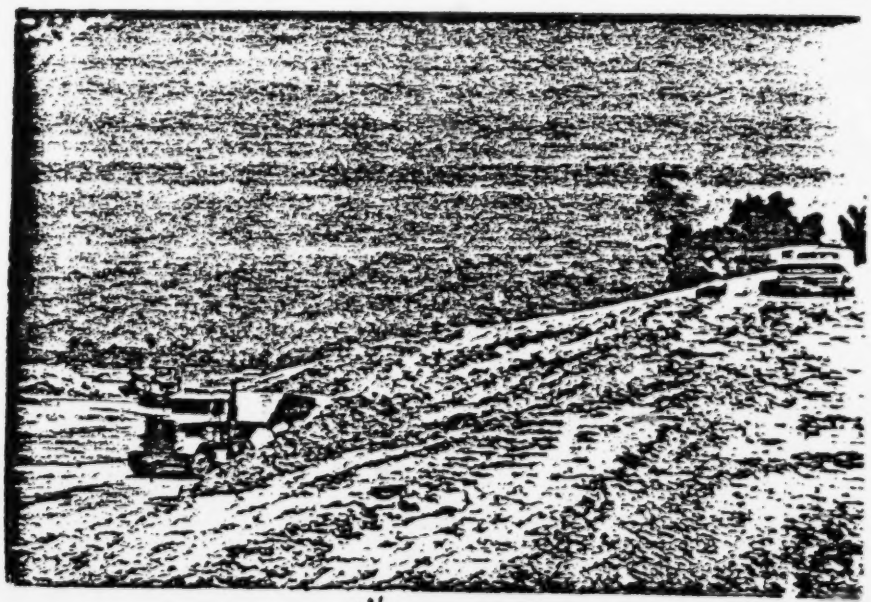

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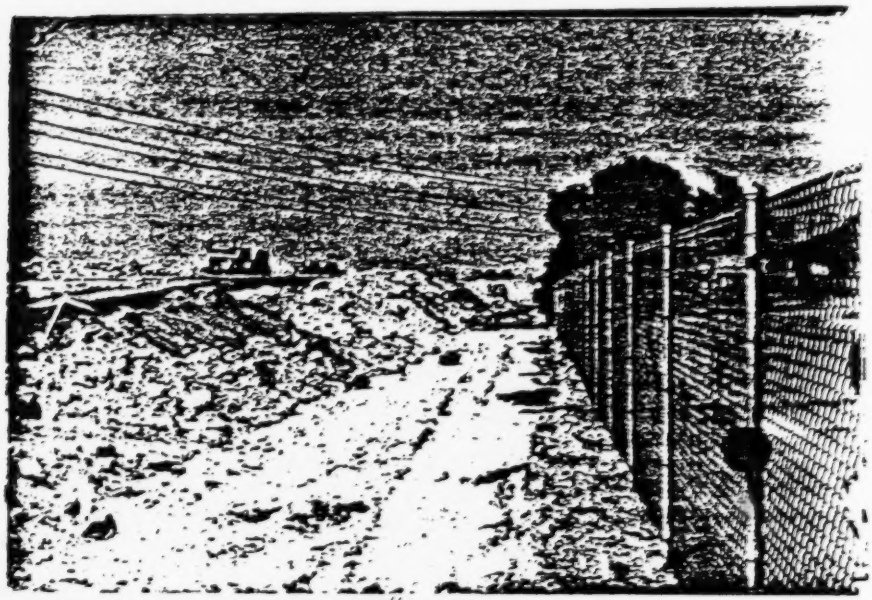

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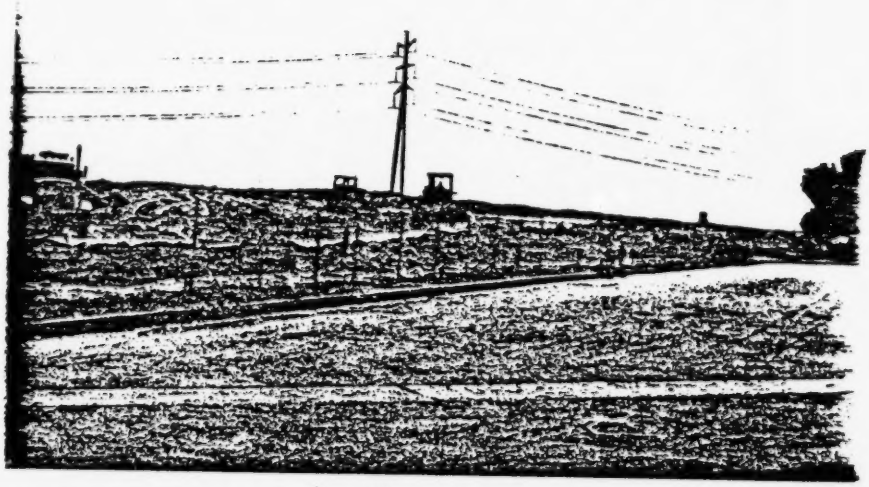

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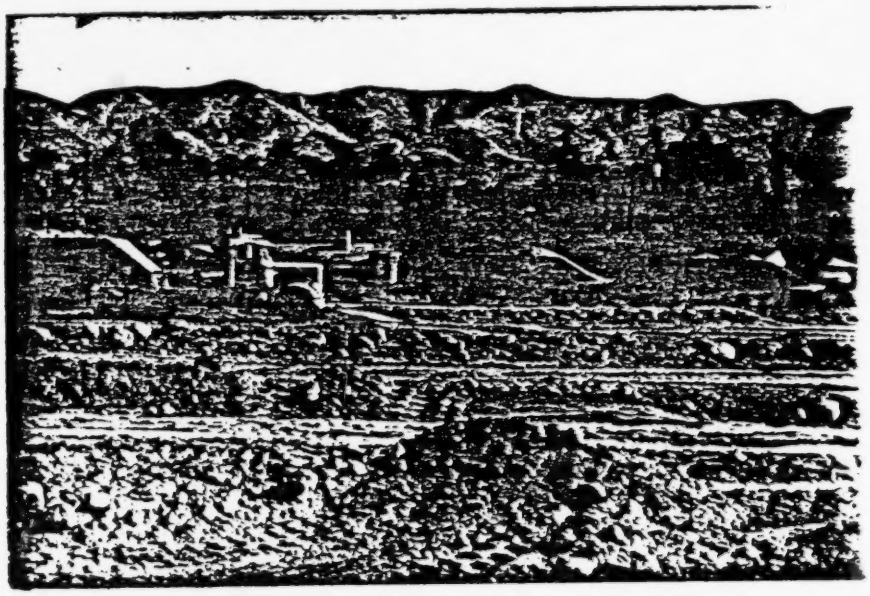

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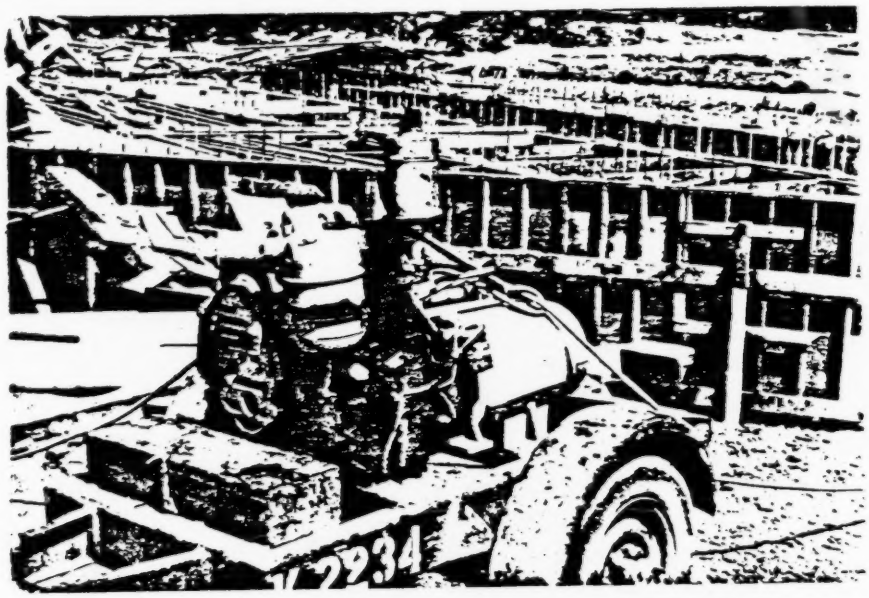

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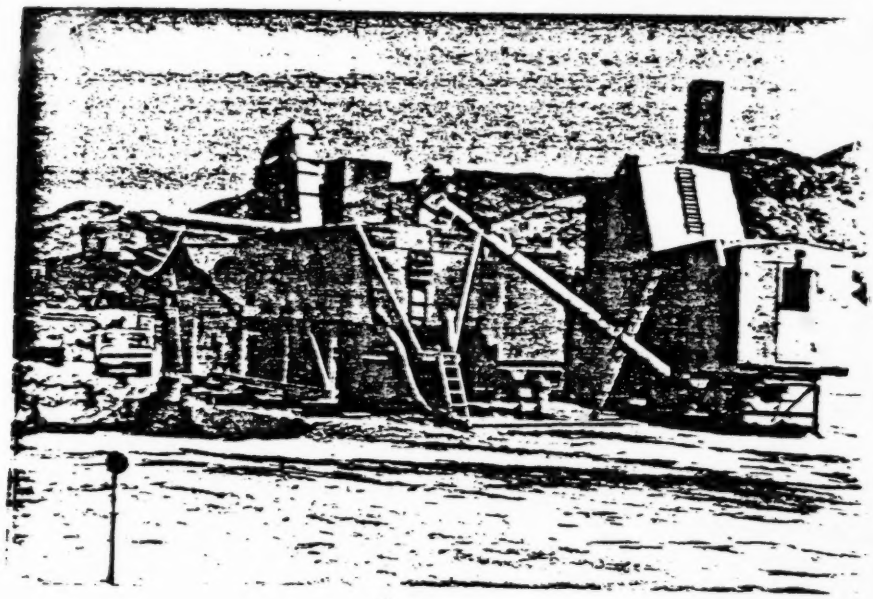

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